

**METHOD AND APPARATUS FOR FREQUENCY-DOMAIN  
TRACKING OF RESIDUAL FREQUENCY AND CHANNEL  
ESTIMATION OFFSETS**

**ABSTRACT OF THE DISCLOSURE**

5           Various methods and apparatus for frequency-domain estimation of carrier  
frequency offsets are provided in which the carrier frequency offset estimate is robust against  
non-white (frequency-dependent) noise. A carrier-specific weighting factor is associated  
with each carrier of a multi-carrier signal. Using the carrier-specific weighting factors, a  
carrier frequency offset estimate is computed from received signals and estimated channel  
10   transfer functions associated with each of the carriers. Because greater weights are given to  
carriers whose frequencies include lower noise and/or carriers transmitting a known sequence  
of symbols, the estimate of the carrier frequency offset is improved. The carrier frequency  
offset estimate may then be applied in a feedback loop to phase-compensate a subsequently  
received signal.

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